

CLAIMS

1. A back illuminated photodetector comprising:
 - a first conductive type semiconductor substrate;
 - a second conductive type doped semiconductor region provided
 - 5 in the first superficial surface layer of the semiconductor substrate;
 - a recessed portion for incidence of to-be-detected light formed
 - in the second surface of the semiconductor substrate and in an area
 - opposite the doped semiconductor region; and
 - a coating layer made of resin for transmitting the to-be-detected
 - 10 light, the coating layer being provided on the second surface,
 - the coating layer being arranged in such a manner that the
 - portion provided on the recessed portion in the second surface is sunk
 - lower than the portion provided on the outer edge portion of the
 - recessed portion.
- 15 2. The back illuminated photodetector according to Claim 1,
further comprising a supporting film provided on the first surface of the
semiconductor substrate to support the semiconductor substrate.
3. The back illuminated photodetector according to Claim 2,
further comprising a filling electrode penetrating through the supporting
- 20 film and connected electrically to the doped semiconductor region at
one end thereof.
4. The back illuminated photodetector according to any one of
Claims 1 to 3, wherein a highly-doped semiconductor region with
impurities of the first conductive type added thereto at a high
- 25 concentration is exposed across the entire side surface of the
semiconductor substrate.

5. The back illuminated photodetector according to any one of Claims 1 to 4, wherein a highly-doped semiconductor layer with impurities of the first conductive type added thereto at a high concentration is provided in the bottom portion of the recessed portion within the second superficial surface layer of the semiconductor substrate.

6. The back illuminated photodetector according to any one of Claims 1 to 5, wherein a highly-doped semiconductor layer with impurities of the first conductive type added thereto at a high concentration is provided in the second superficial surface layer in the outer edge portion of the semiconductor substrate.